FEB 19 1982

MCDONNELL DOUGLAS CORPORATION

U.S. DEPARTMENT OF LABOR
WORKPLACE STANDARDS ADMINISTRATION
BUREAU OF LABOR STANDARDS

MATERIAL SAFETY DATA SHEET

FORM NO OSHA-20 (MODIFIED) MAY 1971

MDC CONTROL NO. QPL 1956

SECTION I: MATERIAL AND MANUFACTURER IDENTIFICATION

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
CPR Division, The Upjohn Company	(213) 320-3550

ADDRESS (NUMBER, STREET, CITY, STATE AND ZIP CODE)
555 Alaska Avenue, Torrance, California 90503

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS (QPL 1956 Type 2 & 3)
Toluene diisocyanate (TDI)	Isonate® CPR 2033C Component A
CHEMICAL FAMILY: Isocyanate	FORMULA: $CH_3C_6H_3(NCO)_2$

SECTION II: HAZARDOUS INGREDIENTS*

PAINTS, PRESERVATIVES/SOLVENTS	%	TLV (UNITS)	ALLOYS AND METALLIC COATINGS	%	TLV (UNITS)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES*	%	TLV (UNITS)
Toluene diisocyanate	100	0.02 ppm

SECTION III: PHYSICAL DATA

BOILING POINT (°F)		484	SPECIFIC GRAVITY (H_2O = 1)	77°F	1.22
VAPOR PRESSURE (mm Hg.)	77°F	0.01	PERCENT VOLATILE BY VOLUME (%)		100
VAPOR DENSITY (AIR = 1)		6	EVAPORATION RATE (Water = 1)		> 1
SOLUBILITY IN WATER		Reacts			

APPEARANCE AND ODOR: Colorless to yellow liquid; pungent irritating odor

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	Lel	Uel
270°F. Tag Open Cup		Unknown	Unknown

EXTINGUISHING MEDIA: Water, CO_2, foam, dry chemical

SPECIAL FIRE FIGHTING PROCEDURES: Excessive heat and thermal decomposition generates irritating and possibly toxic fumes and isocyanate vapors. Fire fighters should wear self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS

*PLEASE DO NOT USE GENERALIZATIONS, SUCH AS PETROLEUM HYDROCARBONS, ALCOHOL, KETONES. USE SPECIFIC CHEMICAL NAMES, SUCH AS METHANOL, BENZENE, PERCHLOROETHYLENE.

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SECTION V: HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

0.02 ppm

EFFECTS OF OVEREXPOSURE

Lachrymator. Irritates eyes, nose and throat. Massive exposure to high vapor concentratic may cause bronchitis, bronchial spasm or pulmonary edema. May be allergenic.

EMERGENCY AND FIRST AID PROCEDURES

Remove from contaminated area. If breathing is labored, oxygen should be administered by trained personnel. Obtain medical attention.

SECTION VI: REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Excessive heat

INCOMPATIBILITY (MATERIALS TO AVOID)

Atmospheric moisture, strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS

Isocyanate vapors, CO, CO_2, traces of nitrogen oxides and HCN.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	Moisture. Confinement in a closed container in the presence of moisture may lead to dangerous pressure (CO_2) generation.

SECTION VII: SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Cover spill with sawdust or other absorbent material. Neutralize with dilute aqueous ammonia/isopropanol solution. Neutralized material (solid polyurea) is innocuous.

WASTE DISPOSAL METHOD

Sweep up. Dispose of by any standard method consistent with good industrial practice.

SECTION VIII: SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)

In confined areas, chemical cartridge respirator or independent air supply face mask.

VENTILATION	LOCAL EXHAUST: Recommended	SPECIAL
	MECHANICAL (GENERAL): Recommended	OTHER

PROTECTIVE GLOVES: Recommended	EYE PROTECTION: In face mask or wear chemical goggles.

OTHER PROTECTIVE EQUIPMENT

None required

SECTION IX: SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in unopened containers at 70-90°F. If entire content of container is not used at one time, replace outage with dry nitrogen.

OTHER PRECAUTIONS

Mildly toxic. LD_{50} exceeds 5000 mg/kg in rats. Do not ingest.

S. J. Assony, Ph.D. — PREPARED BY

19 December 1972 — DATE

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WORKPLACE STANDARDS ADMINISTRATION
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MATERIAL SAFETY DATA SHEET

FORM NO OSHA-20 (MODIFIED)
MAY [illegible]

QPL

MDC CONTROL NO. 1956

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CPR Division, The Upjohn Company	(213) 320-3550

ADDRESS (NUMBER, STREET, CITY, STATE AND ZIP CODE)
555 Alaska Avenue, Torrance, California 90503

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
Polyadipate ester polyol monoammonium phosphate	(QPL 1956 Type 2 & 3) Isonate® CPR 2033C Component B

CHEMICAL FAMILY	FORMULA
DNA (mixture)	DNA (mixture)

SECTION II: HAZARDOUS INGREDIENTS*

PAINTS, PRESERVATIVES/SOLVENTS	%	TLV (UNITS)	ALLOYS AND METALLIC COATINGS	%	TLV (UNITS)
PIGMENTS Titanium dioxide	7	Unknown	BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES*	%	TLV (UNITS)
Polyadipate ester polyol	75	Unknown
Monoammonium phosphate	15	

SECTION III: PHYSICAL DATA

BOILING POINT (°F)	DNA	SPECIFIC GRAVITY (H_2O = 1)	1.1
VAPOR PRESSURE (mm Hg.)	Nil	PERCENT VOLATILE BY VOLUME (%)	Nil
VAPOR DENSITY (AIR = 1)	DNA	EVAPORATION RATE (_____ = 1)	DNA
SOLUBILITY IN WATER	Nil		

APPEARANCE AND ODOR Grey pasty resinous mixture. Very little odor.

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	Lel	Uel
>300°F. (C.O.C.)		None known	None known

EXTINGUISHING MEDIA
Water, foam, CO_2, dry chemical

SPECIAL FIRE FIGHTING PROCEDURES
None required.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Thermal decomposition of monoammonium phosphate produces ammonia

*PLEASE DO NOT USE GENERALIZATIONS, SUCH AS PETROLEUM HYDROCARBONS, ALCOHOL, KETONES. USE SPECIFIC CHEMICAL NAMES, SUCH AS METHANOL, BENZENE, PERCHLOROETHYLENE.

SECTION V: HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

Unknown

EFFECTS OF OVEREXPOSURE

None

EMERGENCY AND FIRST AID PROCEDURES

None required

SECTION VI: REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	DNA

INCOMPATIBILITY (MATERIALS TO AVOID)

DNA

HAZARDOUS DECOMPOSITION PRODUCTS Thermal decomposition produces ammonia, CO, CO_2 and traces of nitrogen oxides and HCN

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII: SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Cover with sawdust or other absorbent material. Sweep up. Wash down area with methylene chloride, observing manufacturer's precautions.

WASTE DISPOSAL METHOD

Dispose of by any standard method consistent with good industrial practice for viscous liquids. May be incinerated.

SECTION VIII: SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)

None required. When used with CPR 2033C Component A, see Safety Data Sheet.

VENTILATION	LOCAL EXHAUST: When used with Component A	SPECIAL: --
	MECHANICAL (GENERAL): When used with Component A	OTHER: --

PROTECTIVE GLOVES: Not required	EYE PROTECTION: Chemical goggles

OTHER PROTECTIVE EQUIPMENT

None required

SECTION IX: SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in unopened containers at 70-90°F.

OTHER PRECAUTIONS

None required.

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